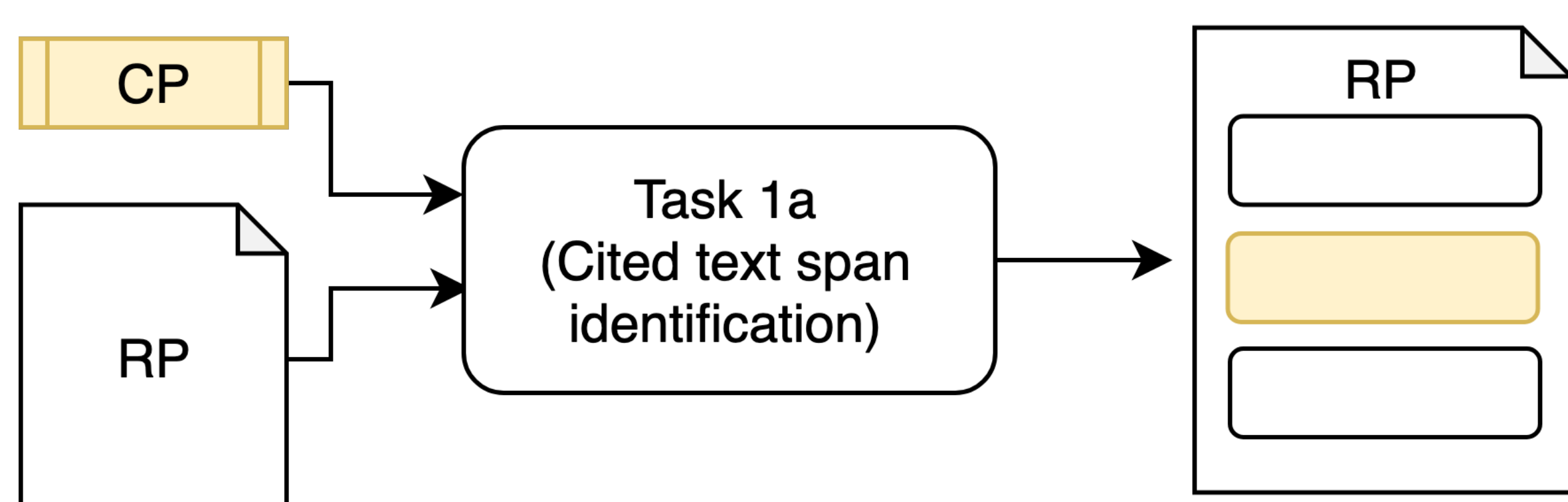


Introduction

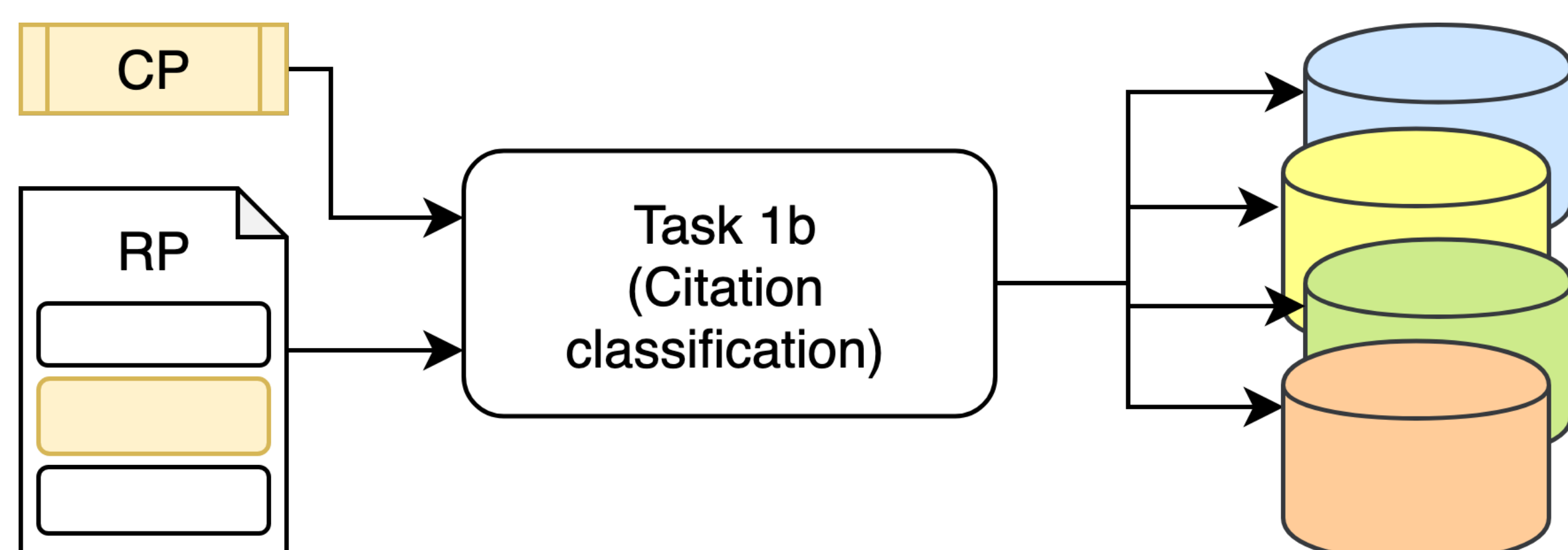
The Poli2Sum method is a machine learning-based approach to *Identify, Classify and Summarize* cited text spans by exploiting the citation context. Supervised models are trained on a variety of data features related to the structure, semantics and syntax of the text. The idea behind is to effectively explore the latent connections between citing context and sentences in the reference paper.

Addressed tasks

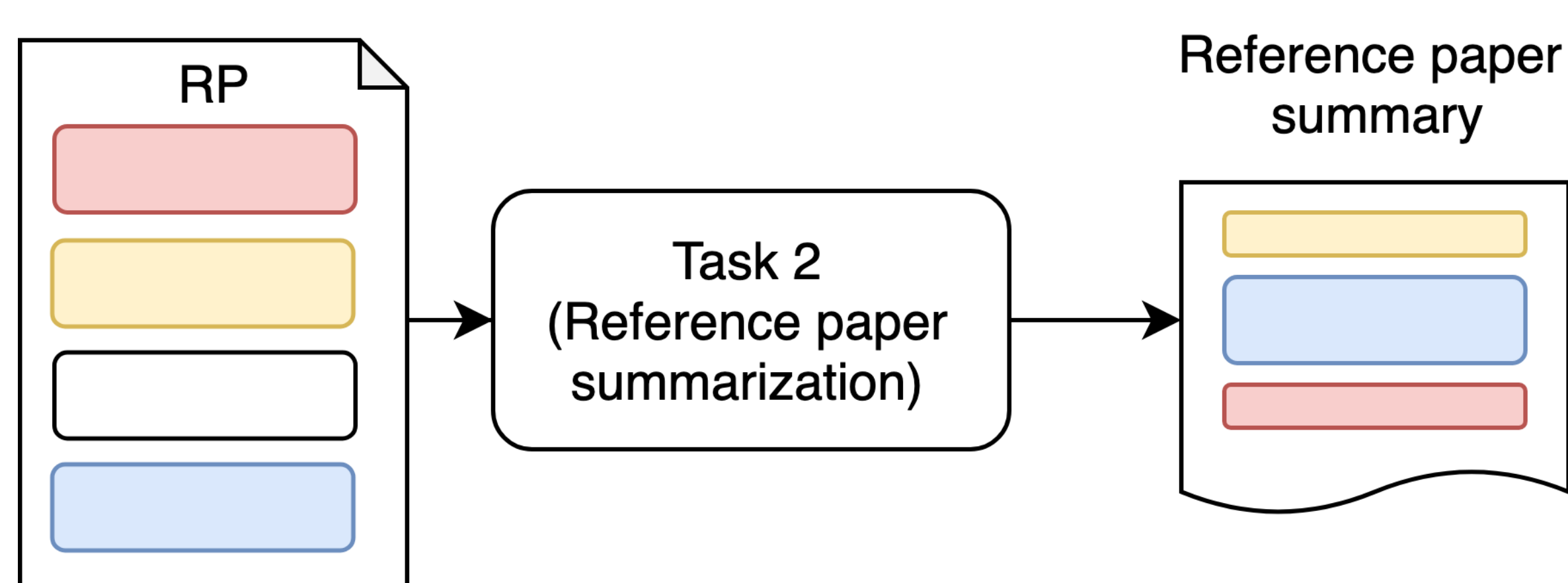
Task 1.a



Task 1.b



Task 2

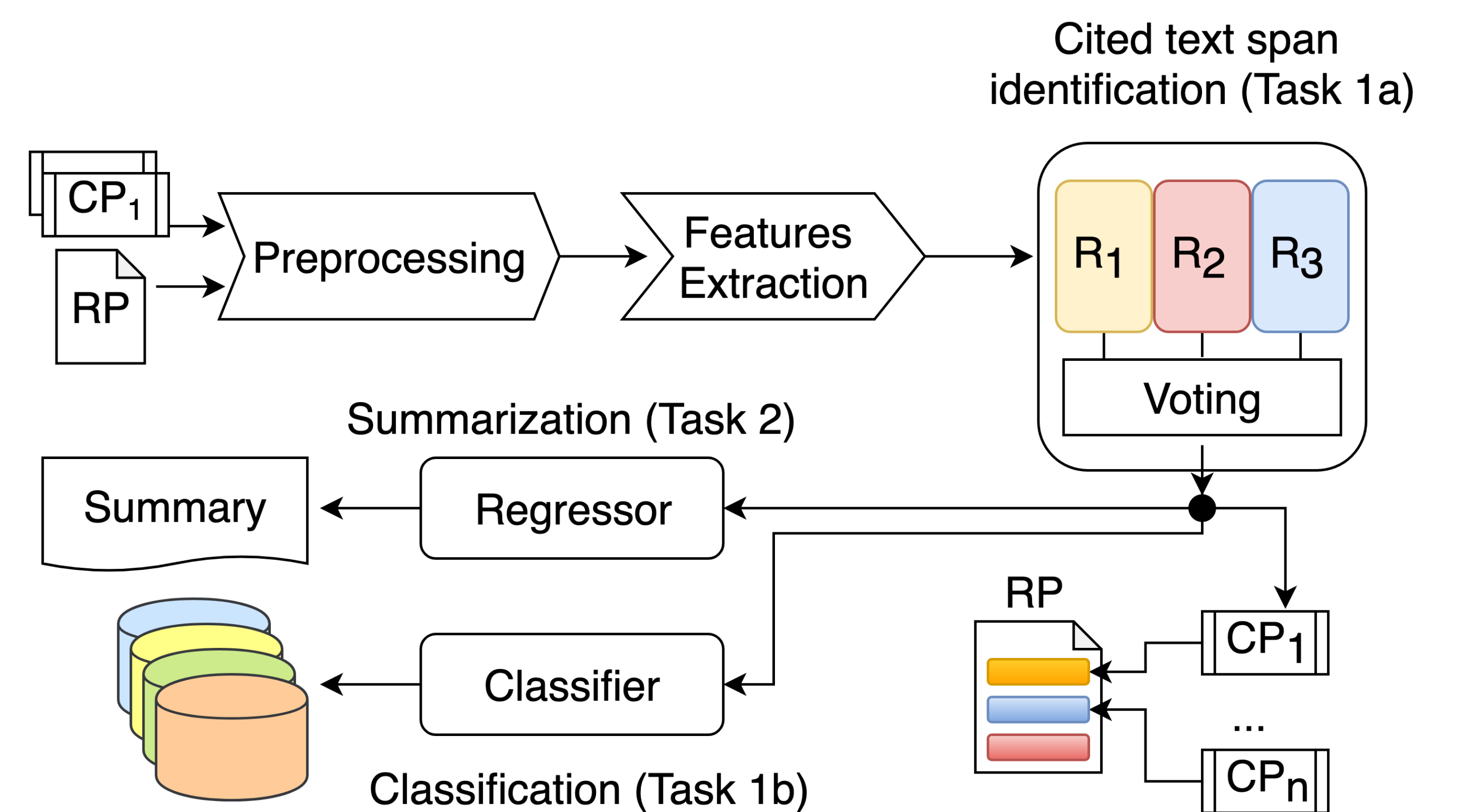


Results

The results achieved separately per task are reported below.

Task	Metric (F1-score)	Result	Rank
1.a	Sentence overlap	0.092	36 th out of 98 runs
1.b	Classification	0.229	57 th over 98 runs
2	Rouge-2 (community)	0.209	1st out of 104 runs
2	Rouge-2 (abstract)	0.364	31 st out of 104 runs
2	Rouge-2 (human)	0.218	72 nd out of 104 runs

The Poli2Sum approach



Poli2Sum is based on task-specific models, which combine the information provided by different features using ensembles of classification and regression methods.

Task 1.a: We propose to train an ensemble of regressors on a selection of semantic and syntactic features in order to predict the sentence similarity with the citing snippet and pick the most similar ones.

Task 1.b: We train a multi-class and multi-label classification system on feature related to the structure of the paper and the relative position of the candidate sentences.

Task 2: We train a supervised summarization model, relying on the Gradient Boosting Regressors, to predict the F1-score Rouge-L similarity with the ground truth (community summary). Training data describe the structure, semantics and syntax of the text under multiple aspects.

Conclusions and future works

The performance of the Poli2Sum approach was promising on Task 2, especially against the community summary, which is the target of the prediction process.

As future work, we plan to integrate deep learning architectures (e.g., BERT) to detect sentence-based causality relationships between citing and cited contexts.